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Psychometric Properties of the Turkish Version of the Parental Falls Knowledge Scale

Ebeveyn Düşme Bilgisi Ölçeği Türkçe Versiyonunun Psikometrik Özellikleri

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ABSTRACT

Objective: The purpose of this methodological study was to produce a Turkish adaptation of the Parental Falls Knowledge Scale and to examine its psychometric performance in parents of hospitalized children.

Methods: A methodological, cross-sectional psychometric validation design was used with 213 parents who were caring for hospitalized children between February and June 2024. Linguistic and cultural adaptation involved forward translation, translation-committee review, back translation, expert appraisal, and pilot testing. Item-level and scale-level content validity indices were calculated to evaluate content validity. Construct validity was investigated through exploratory and confirmatory factor analyses. Reliability was examined using Cronbach's alpha, McDonald's omega, item-total correlations, and split-half procedures.

Results: The adapted Turkish scale retained 23 items grouped into five subscales. Sampling adequacy was supported by a Kaiser-Meyer-Olkin coefficient of 0.812, while Bartlett's test of sphericity reached statistical significance. The five-factor solution accounted for 61.154% of the total variance. Confirmatory factor analysis supported an acceptable level of model fit, although several indices were near the lower boundary of acceptability. For the overall scale, Cronbach's alpha was 0.821; subscale coefficients ranged from 0.655 to 0.887.

Conclusion: Findings indicate that the Turkish form of the Parental Falls Knowledge Scale provides valid and reliable measurement of parents' knowledge and awareness concerning fall risks during pediatric hospitalization. It may also assist pediatric nurses in recognizing parental educational needs and organizing fall-prevention interventions.

Keywords: Pediatric fall, fall prevention, scale validity

ÖZ

Amaç: Bu metodolojik araştırmada, Ebeveyn Düşme Bilgisi Ölçeği'nin Türkçeye uyarlanması ve hastanede yatan çocukların ebeveynlerinde psikometrik özelliklerinin incelenmesi amaçlanmıştır.

Yöntem: Metodolojik ve kesitsel nitelikteki çalışma, Şubat-Haziran 2024 döneminde hastanede yatan çocuklara bakım veren 213 ebeveynle yürütülmüştür. Ölçeğin dilsel ve kültürel uyarlama sürecinde ileri çeviri, çeviri komitesi incelemesi, geri çeviri, uzman değerlendirmesi ve pilot uygulama aşamaları izlenmiştir. İçerik geçerliliğinin değerlendirilmesinde madde ve ölçek düzeyindeki içerik geçerliliği indekslerinden yararlanılmıştır. Yapı geçerliliği keşifsel ve doğrulayıcı faktör analizleriyle incelenirken, güvenilirlik Cronbach alfa, McDonald omega, madde-toplam korelasyonları ve yarıya bölme yöntemiyle değerlendirilmiştir.

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Bulgular: Türkçe uyarlama 23 madde ve beş alt ölçekten oluşmuştur. Kaiser-Meyer-Olkin katsayısı 0,812 olarak bulunmuş ve Bartlett küresellik testi istatistiksel olarak anlamlı sonuç vermiştir. Beş faktörlü model toplam varyansın %61,154'ünü açıklamıştır. Karşılaştırmalı uyum indeksi bulguları, bazı uyum indeksleri kabul edilebilir sınırın alt düzeylerine yakın olmakla birlikte modelin genel olarak kabul edilebilir uyum gösterdiğini ortaya koymuştur. Toplam ölçek için Cronbach alfa 0,821 olup alt ölçeklerde 0,655-0,887 arasında değişmiştir.

Sonuç: Bulgular, Ebeveyn Düşme Bilgisi Ölçeği'nin Türkçe formunun, çocukların hastanede yatış sürecinde ebeveynlerin düşme risklerine ilişkin bilgi ve farkındalıklarını değerlendirmede geçerli ve güvenilir bir ölçme aracı olduğunu göstermektedir. Ölçek, pediyatri hemşirelerinin ebeveynlerin eğitim gereksinimlerini belirlemesine ve düşmelerin önlenmesine yönelik girişimleri planlamasına katkı sağlayabilir.

Anahtar kelimeler: Pediyatrik düşme, düşme önleme, ölçek geçerliliği

INTRODUCTION

Patient safety refers to protecting patients from avoidable harm throughout healthcare delivery while reducing safety-related risks to an acceptable level [1,2]. Within this framework, falls represent a major threat to patient safety [3,4]. Falls may result in injuries ranging from minor to serious secondary trauma. Depending on their severity, such events can prolong hospitalization and increase healthcare-related costs [5,6]. Fall occurrence may be influenced by disease-related characteristics, medications and equipment used during treatment, surgical procedures, and patients' disability status [7]. Environmental features of the hospital, including conditions related to patient rooms and beds, also contribute to fall risk [8]. Compared with adults, children are especially vulnerable because of developmental characteristics, limitations in cognitively and linguistically reporting their needs, and dependence on physical assistance [9,10]. In young children, immature balance combined with rapid mobility further increases this vulnerability [11]. A large proportion of inpatient pediatric falls are preventable because nurses can frequently recognize relevant risks before an event occurs. Accordingly, pediatric nurses use developmentally appropriate strategies to reduce fall events [12], including structured risk assessment, careful interpretation of risk findings, implementation of preventive measures, and reporting of any fall that occurs [10]. Information obtained from such reports can guide institutional improvements in pediatric fall prevention.

When the falls of pediatric patients were analyzed, it was reported that the age of the child was an important risk factor and that children aged 1-3 years had more falls in the hospital, most of which occurred from patient beds and near caregivers [9]. In addition to the characteristics of the children, many characteristics of the parents were found to be risky in the event of children falling [13]. Low education level, smoking habits, and prolonged hospitalization of the child affect falls [14]. Therefore, parents should also be included in developing fall-related precautions [15].

During the hospitalization, the child's caregiver, parents, and pediatric nurses constantly interact regarding the child's treatment, care, and development [13]. During children's falls in the hospital, their parents are usually with them. In the event of a fall, parents provide important information about what precautions should be taken while informing the nurses about how the incident occurred [16]. Therefore, informing the parents, who are the primary caregivers of the child, about the fall and also developing awareness in parents about the child's risk of falling constitute an important part of evidence-based practices [17-19]. Especially during shift changes, parents should closely follow the child's changing disease process and developments that may increase the risk of falling and take precautions [18,19]. The participation of parents during the risk assessment of their child and the subsequent implementation of a fall prevention plan is important to maximize the desired effect in preventing falls in a hospital [13]. Effective education of parents regarding the risks of falls during the hospitalization of their children and the precautions to be taken is beneficial in significantly reducing pediatric falls [15,18,20].

Parents occupy an important position in the prevention of falls among hospitalized children. A first requirement is the accurate identification of what parents know about clinically relevant fall risks [15,16,21]. Valid and reliable instruments are also needed to quantify parental knowledge, identify gaps in understanding of risk factors, support education, and evaluate the effects of awareness-oriented interventions. Existing pediatric fall-risk instruments generally emphasize the child's clinical and developmental characteristics rather than parental knowledge and awareness. Because parents remain with their children for much of the hospitalization and actively participate in preventive practices, evaluating their knowledge is important for defining educational needs and designing focused pediatric fall-prevention programs [9,13,15,18-21]. No Turkish instrument with established validity and reliability was identified for assessing parental knowledge of inpatient pediatric falls. Accordingly, the present study focused on adapting the Parental Falls Knowledge Scale into Turkish and testing its psychometric properties.

MATERIAL AND METHOD

Aim of the Research

The study sought to adapt the Parental Falls Knowledge Scale for Turkish use and to evaluate its psychometric characteristics in parents of hospitalized children.

Design

A methodological, cross-sectional psychometric validation design was adopted.

Sample Characteristics

Participants were parents of children hospitalized in the pediatric clinic of a state hospital situated in an urban center in Western Türkiye. Eligibility required that the child had been receiving inpatient care for at least one day. Data collection took place from

February through June 2024. The study hospital includes a 26-bed pediatric clinic and a 10-bed pediatric surgery clinic. The standard Harizmi Fall Risk Scale is routinely administered to children in the pediatric clinic; however, caregiver parents are not assessed with a specific instrument addressing their knowledge, attitudes, or precautions concerning pediatric fall risk.

Sample

Recommendations for psychometric studies commonly indicate a sample size of approximately 5-10 participants per scale item. On this basis, a 23-item instrument would require at least 115 parents. To provide a stronger basis for evaluating the scale's validity and reliability, the target sample was set at 230 parents. The final analysis included 213 parents who completed the data collection materials in full and whose children had been hospitalized for at least one day.

Data Collection Tools

Parent Identification Form: This form includes the age, gender, education level, and economic level of the parents participating in the study, as well as the characteristics of the hospitalized child.

Parental Falls Knowledge Scale: Developed by Sheppard-Law et al. [21] in 2022, this instrument evaluates parents' knowledge and awareness of fall risks affecting their hospitalized children. Psychometric analyses of the original instrument reduced an initial pool of 38 items to 23. Responses are given on a five-point Likert scale. Possible raw total scores extend from 23 to 115, and higher values represent greater parental knowledge and awareness of pediatric fall risk. A mean item score between 1 and 5 may also be obtained by dividing the raw total score by 23; values of 3 or less indicate insufficient knowledge, whereas values above 3 indicate sufficient knowledge. The five sub-dimensions are "knowledge of risk", "providing Supervision", "knowledge to prevent", "perception of hospital safety", and "developmental risk". Reported Cronbach alpha coefficients for these sub-dimensions are 0.886, 0.929, 0.748, 0.72, and 0.701, respectively, and the coefficient for the total scale is 0.79 [21].

Procedure

Validity Analyses

Scale validity was examined in terms of content and scope validity.

Translation of the Scale

Translation and cultural adaptation were carried out in accordance with recommended cross-cultural scale-adaptation procedures [22-24]. Three professional linguists, each fluent in Turkish and English and experienced in academic and health-related translation, independently translated the original English instrument into Turkish. A review committee comprising the researchers, translators, and an academic expert in scale adaptation and pediatric nursing then examined the three translations item by item. Semantic equivalence, conceptual consistency, comprehensibility, and cultural suitability were considered, and differences were resolved by consensus, resulting in a preliminary Turkish form.

An independent bilingual language specialist who had neither participated in the forward-translation stage nor reviewed the original instrument subsequently translated this preliminary Turkish form back into English. The research team compared the back-translated text with the source version to evaluate conceptual and semantic equivalence. Minor adjustments were introduced where necessary so that the Turkish items remained understandable, culturally suitable, and faithful to the intended meaning of the original items. This finalized Turkish form proceeded to expert content-validity review and psychometric evaluation.

Content Validity of the Scale

Cross-cultural adaptation guidance recommends obtaining evaluations from at least three experts when examining equivalence with an original scale [22-24]. For the Turkish form in this study, opinions were obtained from twelve faculty members working in child health and disease nursing or nursing management. Each expert reviewed both the original English instrument and the Turkish version prepared through language translation. Items were rated on a four-point scale (1=much change is needed, 2=little change is needed, 3=suitable, 4=very suitable). Revisions were made in response to expert feedback. Item-level content validity index (I-CVI) and scale-level (S-CVI) CVI were then calculated. Values of 0.80 or higher for these indices are interpreted as indicating adequate agreement among experts [25-27].

Pilot Application

Pilot testing was performed in a small group outside the main study sample but with characteristics comparable to those of the target population, as recommended for evaluating language and expression [22]. The pilot participants were parents of children who had been hospitalized for at least one day, consistent with the main sample criteria. The Turkish parental fall knowledge scale was administered to 20 such parents to assess item wording and comprehensibility. They were specifically asked to judge whether each item was clear, understandable, culturally appropriate, and easy to answer. No concerns about comprehensibility were reported. Data from these 20 parents were excluded from the main analysis, and following the pilot stage the instrument was considered ready for administration to the principal sample [25].

Reliability of the Scale

Reliability was investigated through internal-consistency and split-half approaches. Internal consistency was assessed with Cronbach's alpha, McDonald's omega, item-total correlations, and item-subscale total correlations. A Cronbach alpha coefficient of at least 0.70 is generally regarded as acceptable [22-24], while item-total and item-subscale total correlation coefficients are recommended to be no lower than 0.20 [25-27]. Split-half analysis, another established reliability approach, was also applied in the present study [25-27].

Construct Validity of Scale

Construct validity was investigated using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Before factor extraction, data suitability was evaluated with the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity, which evaluates whether the correlation matrix differs from an identity matrix. Values above 0.60 for KMO together with a significant Bartlett result ($p<0.05$) are considered appropriate for factor analysis. Principal axis factoring with promax rotation was employed. Factor retention was based on eigenvalues greater than 1 together with inspection of the scree plot. Parallel analysis was not undertaken and was acknowledged as a methodological limitation [25-27]. Consistent with published recommendations, 0.32 was used as the minimum factor-loading criterion for assigning items to factors [25-27].

CFA was additionally used to evaluate the proposed construct structure, and several goodness-of-fit indicators were considered. An acceptable fit is generally indicated when the chi-square/degree-of-freedom ratio is below 5. A root-mean-square error of approximation (RMSEA) below 0.080 indicates close fit, while values above 0.90 are recommended for the other fit indices. Together, these thresholds provide a basis for judging how adequately the specified model represents the observed data [25-27].

Ethical Consideration

Ethical approval for conducting the study was obtained from İzmir Bakırçay University's Non-Interventional Ethics Board (approval no: 1119, date: 20.07.2023), and institutional authorization was secured from the participating hospital. All participants provided written informed consent in accordance with the principles of the Declaration of Helsinki. Authorization to perform the Turkish validity and reliability study was also obtained from the original scale owner.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics 24.0 and IBM SPSS AMOS 24.0. Internal consistency was examined with Cronbach alpha, item-total correlations, McDonald omega, Spearman-Brown, and Guttman split-half coefficients. CVI together with exploratory and confirmatory factor analyses were used for validity assessment. Factor number was evaluated using eigenvalues and the scree plot; EFA was performed with principal axis factoring and promax rotation. Factors with eigenvalues greater than 1 were retained, and a factor-loading threshold of 0.32 was applied. Before CFA, multicollinearity was checked through variance inflation factor (VIF) and tolerance statistics; all VIF values were required to remain below 10 and tolerance values above 0.1. CFA was estimated from the covariance matrix using the maximum likelihood method. Discriminative performance was examined by comparing the upper and lower 27% groups. Statistical significance was evaluated at the 0.05 level.

RESULTS

Parents had a mean age of 37.87±8.31 years, while the mean child age was 5.73±4.34 years. Mean hospitalization duration was 3.57±2.01 days, and the mean Khwarezmi Scale score was 9.56±7.23. Among the participants, 92% (n=196) were female, 87.3% (n=186) were mothers, 33.3% (n=71) had completed high school, and 74.6% (n=159) reported a moderate/normal economic status (Table 1).

CVI

I-CVI ranged from 0.80 to 1.00, while the CVI calculated for the scale as a whole was 0.98.

EFA

EFA of the 23-item scale yielded a KMO coefficient of 0.812, with Bartlett's test showing $X^2=2101.410$ and $p<0.001$ (Table 2).

EFA supported a five-subdimension solution. The proportions of common variance accounted for by the first through fifth sub-dimensions were 23.101%, 13.168%, 7.009%, 4.918%, and 3.024%, respectively. Collectively, the five factors accounted for 51.219% of the common variance and 61.154% of the total variance. Item loadings ranged from 0.605 to 0.877 for knowledge of risk, 0.623 to 0.876 for providing supervision, 0.663 to 0.753 for knowledge to prevent, 0.331 to 0.871 for perception of hospital safety, and 0.388 to 0.901 for developmental risk (Table 2).

CFA showed factor loadings of 0.58-0.78 for knowledge of risk, 0.52-0.92 for providing supervision, 0.57-0.76 for knowledge to

Table 1. Descriptive Characteristics

Variables	Mean ± SD	Min-max
Parent age	37.87±8.31	18-67
Child age	5.73±4.34	1-17
Hospitalization duration	3.57±2.01	1-14
Fall scale score	9.56±7.23	1-30
	n	**%**
Gender		
Female	196	92.0
Male	17	8.0
Closeness		
Mother	186	87.3
Father	19	8.9
Other	8	3.8
Education level		
Primary school	46	21.6
Secondary school	46	21.6
High school	71	33.3
University and above	50	23.5
Economic level		
Income less than expenses	32	15.0
Income equal to expenses	159	74.6
Income exceeds expenses	22	10.4

SD: Standard deviation

prevent, 0.31-0.61 for perception of hospital safety, and 0.66-0.84 for developmental risk. The model-fit statistics were goodness-of-fit index=0.89, CFI=0.91, incremental fit index (IFI)=0.91, normal fit index (NFI)=0.83, non-NFI (NNFI)=0.90, X^2=381.010, degree of freedom=211, p<0.01, and RMSEA=0.062 (Table 3, Figure 1).

Reliability Analyses

For the total scale, Cronbach's alpha was 0.821 and McDonald's omega was 0.838; across subscales, the corresponding coefficients ranged from 0.655 to 0.887 and from 0.671 to 0.890, respectively. In the split-half evaluation, Cronbach alpha coefficients were 0.680 and 0.666 for the two halves, the Spearman-Brown coefficient was 0.889, the Guttman split-half coefficient was 0.887, and the correlation between halves was 0.799 (Table 4). Correlations between individual items and the total scale score ranged from 0.20 to 0.58. Item-subscale total correlations were 0.60-0.70 for the first sub-dimension, 0.62-0.73 for the second, 0.49-0.57 for the third, 0.31-0.60 for the fourth, and 0.44-0.71 for the fifth. Hotelling's T^2 was 517.368 (F=21.187, p<0.01), indicating no response bias and further supporting the scale's validity.

Table 2. Exploratory Factor Analysis Results (n=213)

Items	Subdimensions and factor loadings				
	Knowledge of risk	Providing supervision	Knowledge to prevent	Perception of hospital safety	Developmental risk
I1	0.613				
I2	0.684				
I3	0.683				
I4	0.877				
I5	0.733				
I6	0.723				
I7	0.688				
I8	0.605				
I9		0.633			
I10		0.716			
I11		0.820			
I12		0.876			
I13				0.348	
I14				0.368	
I15				0.592	
I16				0.871	
I17				0.331	
I18					0.388
I19					0.901
I20					0.705
I21			0.663		
I22			0.753		
I23			0.715		
Eigenvalue	5.770	3.481	2.089	1.556	1.039
Variance explained by sub-dimension (%)	23.101	13.168	7.009	4.918	3.024
Common variance explained (%)	51.219				
Total variance explained (%)	61.154				

Table 3. Confirmatory Factor Analysis Model Fit Indices (n=213)

	χ^2	Df	p-value	χ^2/df	RMSEA	GFI	CFI	IFI	NFI	NNFI
Five sub-dimensional model	381.010	211	0.000	1.806	0.062	0.89	0.91	0.91	0.83	0.90

Df: Degree of freedom, RMSEA: Root-mean-square error of approximation, GFI: Goodness-of-fit index, CFI: Comparative fit index, IFI: Incremental fit index, NFI: Normed fit index, NNFI: Non-normed fit index

The upper 27% group had a mean score of 93.50±5.74 compared with 67.37±10.78 in the lower 27% group. This difference was statistically significant (p<0.001; Table 5).

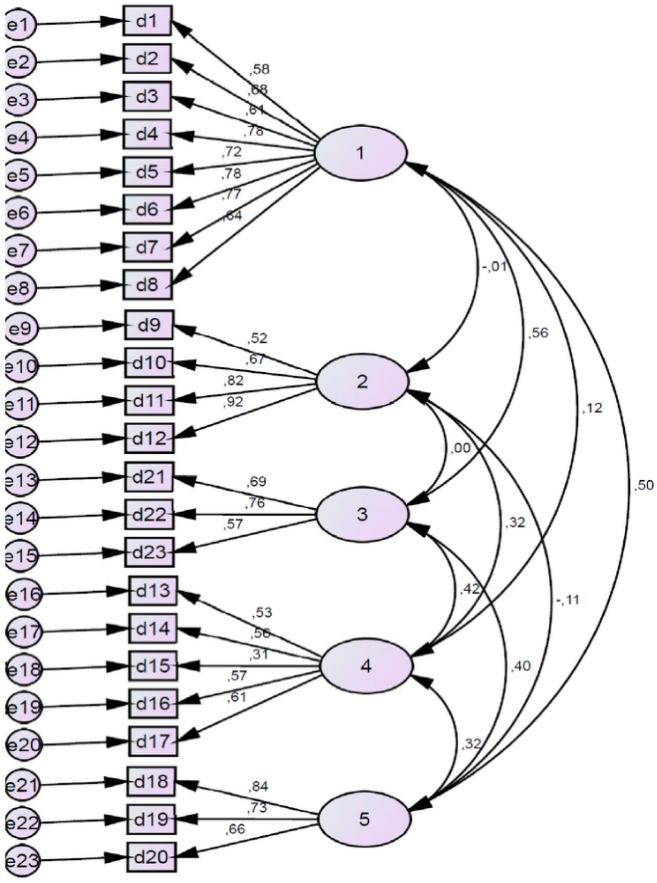


Figure 1. Confirmatory Factor Analysis

Implication for Practice

Pediatric nurses can determine the level of knowledge of parents about hospital-based falls using this scale. They can create education programs, especially for parents with inadequate knowledge or low awareness. With the results obtained from the scale, they can decide which areas parents feel deficient in and which training should be added to in-service training. They can also determine deficiencies or inadequacies in the clinic using the scale results. They can create clinical procedures or evidence-based guidelines for these deficiencies. They can create training programs based on the results they obtain by using the scale in the clinic and plan interventional studies to evaluate these programs.

DISCUSSION

The discussion focused on the psychometric performance of the Turkish Parent Fall Knowledge Scale. Content validity was evaluated by twelve faculty experts from child health and disease nursing and nursing management. Published guidance indicates that I-CVI and S-CVI values above 0.80 reflect adequate consistency among expert judgments and satisfactory I-CVI [25,26]. The indices obtained in this study met this criterion and demonstrated strong agreement among the experts, supporting the scale's capacity to represent parental knowledge regarding children's inpatient fall risk [25,26].

Sampling adequacy and the factorability of the correlation matrix were examined using the KMO coefficient and Bartlett's sphericity test, respectively. For construct-validity analyses, the literature recommends a statistically significant Bartlett test and a KMO value of at least 0.60 [25,26,28]. In the present study, Bartlett's test was significant and KMO exceeded 0.60, indicating that the dataset was appropriate and adequate for construct-validity assessment.

Table 4. Scale and Sub-Dimensions Reliability Analyses (n=213)

Scale and sub-scale	Cronbach alpha	McDonald omega	Split-half analysis				
			First half Cronbach alpha	Second half Cronbach alpha	Spearman-Brown	Guttman split-half	Correlation between two halves
Knowledge of risk	0.887	0.890	0.680	0.666	0.889	0.887	0.799
Providing Supervision	0.847	0.853					
Knowledge to prevent	0.716	0.719					
Perception of hospital safety	0.655	0.671					
Developmental risk	0.709	0.750					
Total scale	0.821	0.838					

Table 5. Upper-lower 27% Group Comparison

Groups	Mean ± SD	t	p-value
Upper 27% group (n=74)	93.50±5.74	16.282	<0.001
Lower 27% group (n=74)	67.37±10.78		
SD: Standard deviation			

When data adequacy and sample suitability are established, EFA is recommended in scale-adaptation research [26,28-30]. The EFA performed here reproduced a five-dimensional structure comparable to that of the original instrument, with all factor loadings exceeding 0.33. The five sub-dimensions accounted for 61% of total variance and 51% of common variance after measurement error was excluded. In the original scale, factor loadings were above 0.40 and the factors explained 63.8% of total variance [21]. Methodological guidance commonly identifies 0.30 as a minimum acceptable factor loading and 40% as a minimum level of explained variance [26,28-30]. Both criteria were surpassed in the current analysis, where loadings were above 0.30 and total explained variance reached 61%. Thus, the EFA findings suggest that the items adequately reflected the constructs represented by their respective sub-dimensions and that the scale can capture parental knowledge of fall risk, fall-related counseling needs, prevention knowledge, perceptions of hospital risk, and knowledge of developmental risks.

Use of CFA in conjunction with EFA is recommended in adaptation studies [26,28-30]. In this analysis, every factor loading exceeded 0.30 and the five-factor model demonstrated acceptable overall fit. RMSEA, CFI, IFI, and NNFI supported the model, whereas goodness-of-fit index and NFI were at or below conventional cutoffs; these findings therefore warrant cautious interpretation. Direct comparison with the original instrument was not possible because CFA had not been reported for that scale [21]. Within the present sample, CFA indicated adequate associations of the items with their respective sub-dimensions and with the scale as a whole, suggesting that the Turkish structure can adequately represent parental knowledge concerning pediatric inpatient fall risk. These results provide preliminary support for the five-factor organization of the Turkish version. Nevertheless, because EFA and CFA were conducted in the same sample, confirmation with larger independent samples is needed.

Reliability was examined after completion of the validity analyses. Methodological sources generally recommend Cronbach's alpha and McDonald's omega values above 0.70 for overall scales and above 0.60 for sub-dimensions [26,28-30]. In this study, both coefficients exceeded 0.80 for the total scale and 0.60 for every sub-dimension, indicating good overall internal consistency. Knowledge of risk and providing supervision showed good internal consistency, whereas knowledge to prevent falls, developmental risk, and perception of hospital safety were within the acceptable range. Reliability evaluation also included item-total and item-sub-dimension total correlations. Because item-total correlations represent the association of each item with the full scale, values above 0.20 are recommended [26,28-30]. Both sets of correlations exceeded 0.20 in the present study, adding support for reliability. Split-half results were likewise favorable: the alpha coefficients for the two halves exceeded 0.66, and both Spearman-Brown and Guttman Half coefficients were above 0.80. Taken together, these results indicate that the items consistently assess parental knowledge of inpatient fall risks, including developmentally related risk factors, across differing circumstances without measuring an unrelated construct [26,28-30]. The original study reported Cronbach alpha values above 0.70 for both the sub-dimensions and total scale [21]. Because split-half and McDonald's omega values were not provided for the original version, these statistics could not be compared; other reliability findings were nevertheless consistent with the present results [21]. Overall reliability was good, with subscale coefficients ranging from acceptable to good. The Perception of Hospital Safety subscale, although acceptable, may benefit from further assessment in other samples, potentially because it contains relatively few items or because perceptions of environmental hospital safety may vary culturally.

Comparison of upper and lower 27% score groups is one recommended approach for examining scale discrimination within validity and reliability studies [28-30]. The present study found a statistically significant difference between the total scores of parents in the upper and lower 27% groups ($p<0.01$). This finding demonstrates that the instrument can discriminate between parents with lower and higher levels of knowledge regarding their children's fall risks during hospitalization and further supports its validity and reliability.

In addition to its psychometric performance, the Turkish Parental Falls Knowledge Scale has potential relevance for pediatric patient-safety practice. Previous research indicates that many inpatient pediatric falls are preventable and that caregiver education can improve knowledge and preventive behaviors related to falls [9,10,13,15,18,19,21]. The instrument may therefore help pediatric nurses identify parents who need additional information, specify the knowledge domains requiring education, and assess the effects of fall-prevention teaching. It may consequently function both as an assessment instrument and as an outcome measure in intervention research designed to strengthen parental participation in pediatric inpatient safety.

Study Limitations

Several limitations should be considered. Recruitment was conducted by convenience sampling at a single center, which can restrict the generalizability of the findings. The study also relied on parent-reported data. Test-retest reliability could not be assessed because most children were discharged before the recommended 2-6-week reassessment period, preventing evaluation of the temporal stability of the Turkish scale. In addition, EFA and CFA were both performed on the same sample, which may weaken the robustness of factorial validation. Subsequent studies should test the factor structure in larger independent samples and evaluate test-retest reliability.

CONCLUSION

The findings support the Turkish Parental Falls Knowledge Scale as a valid and reliable measure of parental knowledge and awareness of fall risks during pediatric hospitalization. Pediatric nurses may use the scale to determine educational needs, organize individualized or group fall-prevention education, and

assess the effects of these educational interventions. In research contexts, it may also serve as an outcome measure in studies targeting greater parental participation in pediatric patient safety. Additional studies are warranted to examine temporal stability and to verify the factor structure in independent samples.

Ethics

Ethics Committee Approval: Ethical approval for conducting the study was obtained from İzmir Bakırçay University's Non-Interventional Ethics Board (approval no: 1119, date: 20.07.2023).

Informed Consent: All participants provided written informed consent in accordance with the principles of the Declaration of Helsinki.

Footnotes

Authorship Contributions

Concept: İB, SS-L; Design: İB, SS-L; Data Collection or Processing: ŞBY, SB; Analysis or Interpretation: İB, ŞBY, MB; Literature Search: İB, SB; Writing: İB, ŞBY, MB, SS-L.

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REFERENCES

1. Liberati EG, Martin GP, Lamé G, Waring J, Tarrant C, Willars J, et al. What can safety cases offer for patient safety? A multisite case study. BMJ Qual Saf. 2024; 33(3): 156-65. [Crossref]
2. Pereira SCA, Ribeiro OMPL, Fassarella CS, Santos EJF. The impact of nursing practice environments on patient safety culture in primary health care: a scoping review. BJGP Open. 2024; 8(1): BJGPO.2023.0062. [Crossref]
3. Niv Y, Tal Y. Risk management and patient safety processes in a healthcare organization. In: Patient safety and risk management in medicine: from theory to practice. Cham: Springer Nature Switzerland; 2024. p. 129-74. [Crossref]
4. McLennan C, Sherrington C, Suen J, Nayak V, Naganathan V, Sutcliffe K, et al. Features of effective hospital fall prevention trials: an intervention component analysis. BMC Geriatr 2024; 24(1): 1023. [Crossref]
5. AlGhareeb SA, AlOtaibi NG, Sallam LA, Innab A. Nurse-led fall prevention programs in acute care settings: an integrative review. Int J Nurs Stud Adv. 2025; 9: 100440. [Crossref]
6. Camp K, Murphy S, Pate B. Integrating fall prevention strategies into EMS services to reduce falls and associated healthcare costs for older adults. Clin Interv Aging. 2024; 19: 561-9. [Crossref]
7. Sarı N, Devebakan N, Bağcı H, Sarıçam H. Retrospective investigation of patient falls in a university hospital within the scope of patient safety. Prizren Social Science Journal. 2024; 8(2): 63-71. [Crossref]
8. Altın K, Manav G, Karayağız G. Determination of the risk of falling in children between 3-18 years in hospital. Journal of General Health Sciences. 2020; 2(3): 136-45. [Crossref]
9. Park SY, Ju HO. The effect of pediatric inpatient fall prevention education on caregivers' fall-related knowledge and preventive behaviors. J Korean Acad Soc Nurs Educ. 2017; 23(4): 398-408. [Crossref]
10. Benning S, Webb T. Taking the fall for kids: a journey to reducing pediatric falls. J Pediatr Nurs. 2019; 46: 100-8. [Crossref]
11. Beaulieu E, Beno S. Healthy childhood development through outdoor risky play: navigating the balance with injury prevention. Paediatr Child Health. 2024; 29(4): 255-61. [Crossref]
12. Lee YS, Oh WO. Development of educational content for nurses to prevent safety accidents of hospitalized children: Delphi approach. Child Health Nurs Res. 2019; 25(1): 74-84. [Crossref]
13. Kim EJ, Kim GM, Lim JY. A systematic review and meta-analysis of fall prevention programs for pediatric inpatients. Int J Environ Res Public Health. 2021; 18(11): 5853. [Crossref]
14. Almis H, Bucak IH, Konca C, Turgut M. Risk factors related to caregivers in hospitalized children's falls. J Pediatr Nurs. 2017; 32: 3-7. [Crossref]
15. Shala DR, Brogan F, Cruickshank M, Kornman K, Sheppard-Law S. Exploring Australian parents' knowledge and awareness of pediatric inpatient falls: a qualitative study. J Spec Pediatr Nurs. 2019; 24(4): e12268. [Crossref]
16. Parker C, Kellaway J, Stockton K. Analysis of falls within paediatric hospital and community healthcare settings. J Pediatr Nurs. 2020; 50: 31-6. [Crossref]
17. DiGerolamo KA, Chen-Lim ML. An educational intervention to improve staff collaboration and enhance knowledge of fall risk factors and prevention guidelines. J Pediatr Nurs. 2021; 57: 43-9. [Crossref]
18. Chen L, Liu W, Li H. Development of an evidence-based care bundle protocol for preventing falls in hospitalized children: Delphi study and trial test. Nurs Open. 2023; 10: 1715-25. [Crossref]
19. Brás AMR, Quitério MMSL, Nunes EMGT. Nurse's interventions in preventing falls in hospitalized children: scoping review. Rev Bras Enferm. 2020; 73(6): e20190409. [Crossref]
20. Fujita Y, Fujita M, Fujiwara C. Pediatric falls: effect of prevention measures and characteristics of pediatric wards. Jpn J Nurs Sci. 2013; 10(2): 223-31. [Crossref]
21. Sheppard-Law S, Brogan F, Usherwood F, Hunstead P, Shala DR. Predictors of parent's knowledge of hospital-based pediatric falls. J Spec Pediatr Nurs. 2022; 27(2): e12368. [Crossref]
22. Çam MO, Baysan-Arabacı L. Qualitative and quantitative steps on attitude scale construction. Hemar-G. 2010; 12(2): 59-71. [Crossref]
23. Nunnally JC, Bernstein IH. Psychometric theory. 3rd ed. New York: McGraw-Hill; 2010. [Crossref]
24. Rattray J, Jones MC. Essential elements of questionnaire design and development. J Clin Nurs. 2007; 16: 234-43. [Crossref]
25. DeVellis RF. Scale development: Theory and applications. 3rd ed. India: SAGE Publications; 2012. p. 31-59. [Crossref]
26. Johnson B, Christensen L. Educational research: quantitative, qualitative, and mixed approaches. 5th ed. California: SAGE Publications; 2014. p. 190-222. [Crossref]
27. Hayran M, Hayran M. Basic statistics for health research. Ankara: Art Ofset Matbaacılık Yayıncılık Org. Ltd Şti.; 2011. p.132-332. [Crossref]
28. Kartal M, Bardakçı S. SPSS ve AMOS uygulamalı örneklerle güvenirlik ve geçerlik analizleri. Ankara: Akademisyen Kitabevi; 2018. [Crossref]
29. Karagöz Y. SPSS 23 and AMOS 23 applied statistical analysis. Ankara: Nobel Akademi Publishing; 2016. [Crossref]
30. Seçer İ. Psychological test development and adaptation process: SPSS and LISREL applications. 2nd ed. Ankara: Anı Publishing; 2018. [Crossref]